PUBLIC DOCUMENT . . . . . No. 55.

ANNUAL REPORT

OF THE

INSPECTOR

OF

Gas Meters and Illuminating Gas.

JANUARY, 1902.

BOSTON:
WRIGHT & POTTER PRINTING CO., STATE PRINTERS,
18 POST OFFICE SQUARE.
1902.

Anonymous.
Feb. 10, 1903

Commonwealth of Massachusetts.

REPORT.

OFFICE OF GAS INSPECTION, 32 HAWLEY STREET,
BOSTON, MASS., Jan. 11, 1902.

To the Honorable Senate and the House of Representatives.

The Inspector of Gas Meters and of Illuminating Gas submits the following annual report: —

During the year ending Dec. 31, 1901, 778 gas inspections were made, 36,262 gas meters inspected, 4 meter provers calibrated, 7 photometer test meters graduated, 24 eudiometric gas analyses made, as well as other experimental work, consultations held with gas consumers and the usual routine office work attended to. The work is divided into two parts, gas inspection and gas meter inspection; the office force consists of the inspector, two assistant inspectors of gas and gas meters and two deputy inspectors of gas meters. The gas inspectors are empowered to test meters as well as gas, but the deputy meter inspectors do not test gas.

GAS.

The gas supplied by the 69 companies in the State was inspected last year, as usual, 778 inspections being made, — an increase of 53 over last year. The gas of every company was inspected at least twice during the year, and an additional inspection was made for every 6,000,000 cubic feet of gas supplied, until the visits became weekly. The inspections were made at irregular intervals, no notice being given of an intended visit. In compliance with the law, the inspector made personally at least one-quarter of the inspections of each company, making 216 in all. The usual inspection comprised the determination of candle-power, the amount in

grains per 100 cubic feet of total sulphur and ammonia, and the presence or absence of sulphuretted hydrogen; except that in the case of oil gases the sulphur and ammonia tests were omitted.

Each inspector carries in his box of apparatus a tube for taking, under the proper conditions, a sample of gas for analysis; this sample is taken whenever the candle-power falls below 16, or for any reason there is any question regarding the composition of the gas. By studying the composition, as shown by analyses, of gases made under different conditions, the reason for high or low candle-powers and the efficiency of purification can be better understood.

In testing for candle-power, the burner best adapted to the gas, that will burn 5 feet of gas per hour properly, and that is at the same time suitable for domestic use, is the one prescribed by law. The proper burner for any particular kind of gas is found by experiment; the D, E and F sizes, old style, and F size, new style, Sugg's London argand burner, have been found the most suitable for coal, mixed and low candle-power water gases; while for higher candle-power water gas and oil gas the Sugg's table-top tip open burner and small iron-tip open burner have been used. The standard English sperm candles, six to the pound, have been used for a standard. The tests for purity are strictly chemical analyses, and were applied with all possible precautions for accuracy.

From time to time during the year the results of these inspections, which follow in tables of averages, were furnished the Board of Gas and Electric Light Commissioners, at its request.

The law requires the gas to give a light equal to at least 16 English standard sperm candles, to contain not more than 20 grains of sulphur or 10 grains of ammonia per 100 cubic feet, and to be free from sulphuretted hydrogen. A fine of $100, payable to the town or city wherein the gas company is located, is imposed for three consecutive violations of any one of these provisions.

Larger Companies.

Number of Inspections made.	NAME OF PLACE OR COMPANY.	CANDLE-POWER.			GRAINS PER ONE HUNDRED FEET OF GAS OF—	
		Average.	Highest.	Lowest.	Sulphur.	Ammonia.
52	Boston, . .	21.61	25.7	18.6	10.04	1.—
8	Brockton, . .	17.67	18.5	16.0	12.42	1.—
52	Brookline, . .	18.73	21.4	16.8	10.15	1.—
48	Cambridge, . .	18.56	19.8	17.5	12.13	1.—
22	Charlestown, .	18.29	20.1	14.9	11.02	1.—
7	Chelsea, . .	17.17	18.2	14.8	10.97	1.30
40	Dorchester, . .	18.24	22.5	16.5	10.26	1.—
10	East Boston, .	17.81	18.9	16.3	11.90	1.34
30	Fall River, . .	22.34	24.6	19.8	8.82	1.—
6	Fitchburg, . .	18.22	19.7	17.0	10.30	1.–
6	Gloucester, . .	17.60	18.4	17.1	13.53	1.—
21	Haverhill, . .	24.28	26.0	20.7	10.21	1.—
13	Holyoke, . .	19.61	22.9	16.0	11.14	8.49
16	Jamaica Plain, .	17.73	20.1	15.2	10.57	1.—
25	Lawrence, . .	19.94	20.7	19.2	11.74	1.—
52	Lowell, . .	19.64	21.6	17.8	11.32	1.33
32	Lynn, . . .	20.17	22.3	18.5	12.28	1.—
15	Malden, . .	17.13	19.4	14.3	13.22	1.—
15	New Bedford, .	19.37	20.8	17.5	12.33	1.—
18	Newton, . .	18.22	19.3	17.4	12.68	1.—
9	North Adams, .	18.20	20.0	15.2	10.66	6.20
5	Northampton, .	17.96	20.2	16.5	11.56	1.14
5	Pittsfield, . .	24.56	26.0	24.1	6.42	1.—
40	Roxbury, . .	24.98	27.2	19.8	9.36	1.—
11	Salem, . . .	17.78	18.6	17.0	12.75	3.85
21	South Boston, .	25.16	28.0	23.1	10.05	1.—
27	Springfield, . .	19.49	23.0	18.2	11.41	1.—
10	Taunton, . .	17.89	19.6	16.7	11.03	1.—
7	Waltham, . .	17.60	18.4	16.9	10.37	1.47
46	Worcester, . .	20.67	22.5	18.5	13.00	1.—
	Average, .	19.55	–	–	11.12	1.42

Smaller Companies.

Number of Inspections made.	NAME OF PLACE OR COMPANY.	CANDLE-POWER.			GRAINS PER ONE HUNDRED FEET OF GAS OF—	
		Average.	Highest.	Lowest.	Sulphur.	Ammonia.
3	Adams, . .	20.97	22.1	19.8	9.60	1.—
3	Amesbury, . .	22.47	23.8	20.8	10.30	1.—
3	Arlington, . .	17.90	18.6	17.1	11.83	4.07
2	Athol, . . .	19.75	22.9	16.6	7.00	1.—
5	Attleboro, . .	18.30	19.3	17.8	13.40	1.—
4	Beverly, . .	19.25	20.5	18.2	13.00	1.67
4	Chicopee, . .	21.67	24.1	18.9	8.60	1.—
3	Clinton, . .	17.33	17.4	17.3	11.50	1.—
2	Danvers, . .	17.25	17.5	17.0	9.00	1.90
3	Dedham, . .	18.03	18.1	18.0	9.85	1.20
3	Easthampton, .	17.97	19.1	17.1	13.53	18.47
3	Framingham, .	17.07	19.7	13.2	11.77	1.—
2	Gardner, . .	25.50	25.7	25.3	11.55	1.—
3	Greenfield, . .	18.00	18.7	16.9	10.83	8.17
2	Ipswich, . .	23.60	23.6	23.6	7.70	1.—
2	Marblehead, .	18.85	19.0	18.7	12.00	1.—
3	Marlborough, .	19.37	19.6	19.0	11.60	1.—
4	Milford, . .	17.90	18.2	17.8	10.10	4.95
2	Nantucket, . .	18.60	19.2	18.0	13.00	2.85
3	Natick, . .	18.13	18.4	17.8	9.60	1.—
4	Newburyport, .	18.40	19.3	17.6	12.42	1.—
4	North Attleboro, .	18.37	18.9	17.7	11.25	1.00
3	Norwood, . .	18.10	18.2	18.0	10.73	4.67
3	Plymouth, . .	17.70	18.1	17.0	15.47	1.—
3	Quincy, . .	18.37	19.5	17.3	12.63	2.43
2	Southbridge, .	25.45	25.5	25.4	7.80	1.—
3	Spencer, . .	22.90	24.7	20.6	10.07	1.—
2	Stoneham, . .	17.70	18.5	16.9	10.15	1.95
3	Wakefield, . .	18.70	19.0	18.1	12.77	4.10
2	Ware, . . .	18.10	18.1	18.1	9.05	1.—
2	Webster, . .	19.60	21.0	18.2	12.45	1.—
4	Westfield, . .	17.18	19.0	13.5	9.73	1.—
3	Woburn, . .	17.83	18.2	17.4	13.60	1.—
	Average, .	19.19	–	–	11.03	2.23

Oil Gas.

Number of Inspections made.	NAME OF PLACE OR COMPANY.	Candle-power.
2	Amherst,	37.25
2	Leominster,	27.35
2	Lexington,	30.70
2	Middleborough,	24.75
2	Stoughton,	47.35
2	Williamstown,	50.65
	Average,	36.34

The following table gives the results of this year's work in comparison with the preceding four years; the number of companies in the second division refers to the number this year, which differs slightly from previous years: —

	1901.	1900.	1899.	1898.	1897.
All companies but oil gas: —					
Average candle-power,	19.37	19.50	20.01	20.14	19.71
Average sulphur, grains per 100 cubic feet,	11.08	10.77	10.57	9.61	9.54
Average ammonia, grains per 100 cubic feet,	1.84	1.82	2.52	2.06	2.29
Average candle-power: —					
Coal gas, 37 companies,	18.09	18.18	18.23	18.43	17.92
Water gas, 13 companies,	22.91	22.85	23.88	23.72	23.66
Mixed coal and water gas, 13 companies,	19.66	20.14	20.02	20.21	19.79
Petroleum oil gas, 6 companies,	36.34	39.48	40.97	38.02	38.11

The gas in Middleborough, Wakefield and Westfield is supplied by the municipalities.

At Gloucester, Plymouth, Stoughton and Williamstown the tests were made at the gas works, as being the most available places. The Gloucester company has established

an up-town office, but the photometer was not transferred in time for the last test. In the future all the tests will be made at this office, which is about a mile from the works.

Gardner has changed its method of manufacture from oil to water gas; an analysis of this gas appears in the table of eudiometric analyses. Cambridge has added a small percentage of water gas to its coal gas, and its analysis appears in the table.

The violations of the law, numbering 32 this year, are given in the following tables: —

Deficient Candle power.

[Legal standard, 16 minimum.]

Number of Inspections.	PLACE.	Date.	Amount.
22	Charlestown,	Nov. 14,	14.9
7	Chelsea,	Aug. 29,	14.8
3	Framingham,	Oct. 30,	13.2
16	Jamaica Plain,	Nov. 15,	15.2
15	Malden,	Feb. 5,	14.3
9	North Adams,	Dec. 12,	15.2
4	Westfield,	Nov. 20,	13.5

Excesses of Total Sulphur (Grains per 100 Cubic Feet).

[Legal standard, 20 maximum.]

Number of Inspections.	PLACE.	Date.	Amount.
5	Attleboro,	May 25,	21.5
15	Malden,	June 26,	20.5
15	New Bedford,	June 28,	20.2
46	Worcester,	May 31,	22.0

Excesses of Ammonia (Grains per 100 Cubic Feet).

[Legal standard, 10 maximum.]

Number of Inspections made.	PLACE.	Date.	Amount.
3	Easthampton,	July 18,	41.7
3	Greenfield,	Aug. 14,	18.2
13	Holyoke,*	Oct. 4,	47.6
–	Holyoke,*	Oct. 31,	29.5
9	North Adams,	Aug. 14,	26.9
11	Salem,†	April 10,	14.3
–	Salem,†	May 7,	13.4

* Consecutive. † Consecutive.

Sulphuretted Hydrogen present.

[Legal standard, none allowed.]

Number of Inspections made.	PLACE.	Date.
3	Adams,*	Jan. 9.
–	Adams,*	Aug. 14.
–	Adams,*	Dec. 12.
8	Brockton,	Dec. 12.
3	Framingham,	Oct. 30.
2	Gardner,†	Feb. 28.
–	Gardner,†	Oct. 9.
2	Lexington,	Feb. 8.
3	Quincy,‡	Feb. 15.
–	Quincy,‡	Aug. 9.
3	Spencer,§	Feb. 20.
–	Spencer,§	Nov. 1.
2	Stoughton,	March 8.
2	Williamstown,	April 11.

* Consecutive. † Consecutive. ‡ Consecutive. § Not consecutive.

The most noticeable feature of these tables is the reduction in number of excesses of sulphur, from 21 in 1900 and 17 in 1899 to only 4 in 1901.

A fine became due the town of Adams for the three consecutive detections of sulphuretted hydrogen. Only two tests have been made at Gardner since the water gas plant was installed, but the gas is not as yet properly purified. There is no excuse for the presence of sulphuretted hydrogen constantly, except insufficient apparatus; this gas is very poisonous, and corrodes fixtures and meters, but can be easily removed by washing, or wet or dry purification; and, moreover, its presence can be readily detected by testing the gas at outlet of purifiers. There were 14 detections in 1901, the same as in 1900, while there were 24 in 1899.

A number of calorimetric tests were made during the year; these were made at the time of a regular inspection, excepting Haverhill, and the following data obtained: candle-power, sulphur, ammonia, sulphuretted hydrogen, specific gravity, heating power in British thermal units, and an eudiometric analysis, including the ratio of carbon and hydrogen in the illuminants. In making the calorific test, by a Junker's calorimeter, care was taken that only the heat from the combustion of the gas was measured; this was done by having the inflowing gas and water, as well as the burnt gases, at the room temperature; then the heat, measured in the increased temperature of the out-flowing water, must have come from the burning of the gas, and it must be the total heat. As the hydrogen burns to water, which in ordinary use of gas passes off as steam, the heat measured from the condensation of the water from vaporous to liquid condition is deducted from the gross result, and gives the net result. The gas is corrected to cubic feet at 60° F., 30 inches barometer, and saturated with moisture. In the following table are also given the gross heat units calculated from the analyses given in the table of eudiometric analyses. The British thermal unit is the amount of heat required to raise one pound of water 1° F. The following results are for one cubic foot of gas: —

Calorimetric Tests.

GAS FROM COMPANY AT—	Date.	British Thermal Units, at 60 Degrees and 30 In.			Gross British Thermal Units, calculated from Analysis.	Specific Gravity.	Candle-power.
		Net.	Condensation.	Gross.			
Arlington, .	May 15,	634.67	58.08	692.75	692.0	0.417	18.0
Dorchester, .	Oct. 19,	599.80	58.70	658.50	651.9	0.509	16.5
Fitchburg, .	Dec. 5,	594.04	53.81	647.85	649.2	0.439	17.5
Haverhill, .	Nov. 27,	656.59	51.14	707.73	725.7	0.696	23.9
Haverhill; blue gas.	Nov. 27,	295.51	21.19	316.70	314.8	0.431	–
Lawrence, .	May 17,	618.31	53.77	672.38	682.6	0.525	19.3
Newton, .	Dec. 26,	539.22	54.73	593.95	646.3	0.463	17.4
Worcester, .	Dec. 27,	561.31	49.83	611.14	615.2	0.568	18.5

The gas at Haverhill is made by the Wilkinson process for water gas; the "blue" gas, the uncarburetted water gas, is made into a holder and subsequently enriched, or carburetted, by being run through a retort with naphtha or oil vapor, which is made thereby into a fixed oil gas and gives the illuminating power to the blue gas.

In the following table of analyses the first 8 samples are of the gases tested for calorific power; the next 6, of gases below the legal standard of 16 candle-power; and the remainder, samples of gases analyzed for various reasons. The results are in per cents. by volume; the carbon and hydrogen ratios show the relation or proportion of carbon and hydrogen in the illuminants.

Eudiometric Analyses.

SAMPLE.	Candle-power.	Specific Gravity.	Illuminants.	Marsh Gas.	Hydrogen.	Carbonic Oxide.	Nitrogen.	Oxygen.	Carbonic Acid.	Carbon Ratio.	Hydrogen Ratio.
Arlington,	18.0	0.417	5.35	39.00	47.51	6.06	1.70	–	0.38	3.03	6.06
Dorchester,	16.5	0.509	5.28	36.55	40.12	7.78	9.91	0.23	0.13	2.97	6.80
Fitchburg,	17.5	0.439	5.39	36.80	47.65	7.43	1.38	–	1.35	2.15	9.28
Haverhill,	23.9	0.696	15.38	22.35	29.63	28.44	–	–	4.20	2.74	5.40
Haverhill, blue gas,	–	0.431	–	1.00	54.44	38.77	0.32	–	5.47*	–	–
Lawrence,	19.3	0.525	7.99	29.82	42.46	16.57	1.27	–	1.89	3.21	6.18
Newton,	17.4	0.463	6.48	29.44	48.79	13.66	0.42	–	1.21	2.64	6.81
Worcester,	18.5	0.568	8.59	29.05	39.77	13.71	5.79	–	3.09	2.47	4.12
Chelsea,	14.9	0.431	7.02	34.96	34.70	6.60	16.33	0.07	0.32	–	–
Framingham,	13.2	–	8.38	15.39	41.36	25.16	4.05	–	5.66	2.81	4.94
Charlestown,	14.9	0.496	4.92	37.02	42.60	6.10	9.13	–	0.23	–	–
Jamaica Plain,	15.2	–	5.61	36.23	38.80	7.46	11.90	–	–	–	–
North Adams,	15.2	–	4.50	32.08	37.95	5.91	17.99	1.39	0.18	–	–
Westfield,	13.5	–	4.69	31.69	51.17	7.54	4.19	0.36	0.36	–	–
Athol,	16.6	–	12.14	14.61	39.62	29.08	2.29	–	2.26	–	–
Cambridge,	19.3	0.513	6.90	31.30	43.60	9.80	6.37	–	2.03	–	–
Fall River,	22.4	0.680	13.82	18.46	31.86	29.85	3.12	0.26	2.63	–	–
Gardner,	25.3	–	16.77	21.59	29.29	27.36	2.33	–	2.66	2.63	4.48
Lynn,	16.6	–	6.44	31.08	48.91	11.49	–	–	2.08	2.79	6.71
Lynn,	21.2	–	8.99	28.69	40.76	17.41	1.85	–	2.30	2.63	5.58
Roxbury,	19.8	–	11.50	19.36	34.59	29.33	2.53	0.28	2.41	2.23	4.24
Roxbury,	22.5	–	12.27	19.19	31.99	28.67	3.88	0.61	3.39	–	–
Stoneham,	16.9	–	4.67	38.57	45.86	7.62	1.38	–	1.90	–	–
Wakefield,	18.1	–	5.55	39.11	45.78	7.06	0.68	–	1.82	2.33	5.02

* Including 0.65 H_2S.

Gas Meters.

During the year 1901 there were 36,262 gas meters tested, being an increase over last year of 5,697. Of this number, 35,319 were new or recently repaired meters, and were presented for inspection before being used. The remaining 943 belong to the class of "complaint" meters; these are meters which, being in use, are suspected of registering inaccurately, and are reinspected, on complaint of the consumer or gas company. The following table gives a comparison with previous years of the number of meters inspected, in semi-annual periods: —

	1901.	1900.	1899.	1898.	1897.
First six months, . .	15,136	14,431	12,683	9,541	9,172
Second six months, .	20,183	15,497	17,277	13,023	13,512
Complaints for year, .	943	637	485	537	443
Total for year, .	36,262	30,565	30,445	23,101	23,127

The law allows a meter to be stamped as correct that does not vary more than 2 per cent. from the standard measure, either fast or slow. Very few meters of the new or repaired class fail to pass inspection, possibly 25 out of the total this year; these were returned to the manufacturers or repairers for readjustment, and were tested again before being sealed. In inspecting meters great care must be taken with the temperatures; it is essential that the temperatures of the water, air and meters should be very close, not varying more than 2° among themselves. Meters passing inspection, that is, registering accurately within 2 per cent., at the legal rate and under proper conditions, are stamped with a brass badge bearing a serial number, and sealed with the date of inspection. This badge and seal are so placed that in order to change the rate of registration the mutilation of both badge and seal would follow.

The results obtained in retesting the 943 "complaints" follow; these meters are almost always complained of by the consumer, who naturally thinks his meter is fast.

One meter would not pass gas, and therefore could not register; 2 would pass gas, but would not register. The average error of the remaining 940 meters was 1.86 per cent. fast. Four hundred and fifty-six meters, 48.5 per cent. of the total number reinspected, were fast, the average error being 4.76 per cent. A meter is fast when it *registers* more gas than it passes; that is, the amount registered, from which the gas company makes its bill, is greater than the actual amount of gas consumed. Seventy-one meters, 7.6 per cent. of the total number reinspected, were slow, the average error being 7.89 per cent. A meter that is slow will register less gas than it passes, and thus be in favor of the consumer and against the gas company. Four hundred and thirteen meters, 43.9 per cent., were correct within the legal limits. Of the fast meters, 350 registered between 2 and 5 per cent. fast, 95 between 5 and 10 per cent., 7 between 10 and 15 per cent. and 2 between 15 and 20 per cent., while there was 1 each 23 and 27 per cent. fast. Of the slow meters, 45 were between 2 and 5 per cent. slow, 18 between 5 and 10 per cent., 2 between 10 and 15 per cent., and 1 each 21, 29½, 30, 32, 45 and 70 per cent. slow.

Among the new and repaired meters was a number with a "prepayment" attachment; this device provides a convenient method for the consumer to pay in advance for his gas. As this device does not interfere with the proper and accurate registration in cubic feet, as required by law, no distinction has been made, in testing, between a prepayment and an ordinary meter.

The law provides that "Meters . . . shall register the quantity of gas passing through them in cubic feet, so that the number of cubic feet of gas consumed can be easily ascertained by the consumer thereof." Meters should be set in accessible places, not more than six feet from the floor, where they may be easily read, and where, in case of a broken fixture or other accident, the supply can be quickly shut off. To read a gas meter dial, the figures are recorded which the hands have passed, reading from left to right; generally, the figure the hand is nearer on the right hand circle is used. This number is the present state; from this is subtracted the previous state and the result is the number of hundreds of

cubic feet consumed in the period. By following the amount of gas registered from day to day or week to week, the consumer can regulate his use of gas to any desired extent. It should be borne in mind that some burners are wasteful of gas; if this be the case, it can be quickly detected by observing the daily or weekly consumption, and comparing with the amount that ought to have been used by burners consuming five or six feet per hour.

Financial Statement for Year ending Dec. 31, 1901.

Salaries inspector and assistant inspectors, gas and gas meters: —

C. D. Jenkins,	$2,500 00	
L. S. James,	1,500 00	
C. H. Stone,	1,200 00	
		$5,200 00
Appropriation,		$5,200 00

Travelling expenses of same: —

C. D. Jenkins,	$384 84	
L. S. James,	240 96	
C. H. Stone,	276 20	
		$902 00
Appropriation,		$1,200 00

Gas Meter Fees Account for 1901.

Income.

Number, size and fees of meters tested, including complaints: —

Number.	Size.	Fees.	
14,	2 lights,		
22,754,	3 lights, at 25 cents,	$8,064 25	
9,489,	5 lights,		
2,711,	10 lights,		
733,	20 lights		
243,	30 lights,		
19,	45 lights, at 30 cents,	1,156 80	
112,	50 lights,		
38,	60 lights,		
36,	80 lights, at 50 cents,	47 00	
58,	100 lights,		
26,	150 lights, at 90 cents,	23 40	
16,	200 lights, at $1.25,	20 00	
5,	250 lights, at $1.50,	7 50	
6,	300 lights, at $1.70,	10 20	
2,	400 lights, at $2.00,	4 00	
36,262			$9,333 15

Due Jan. 1, 1901,	$1,303 50
Charged for fees for year,	9,333 15
	$10,636 65
Of this there has been collected,	9,076 20
Leaving due Dec. 31, 1901,	$1,560 45
Fees paid Treasurer of the Commonwealth,	$9,076 20
There has been collected and paid Treasurer, due July 1, 1899,	30
Total amount paid Treasurer,	$9,076 50

Expenditures.

Office expenses: —		
Office rent,	$600 00	
Telephone and telegrams,	61 75	
Stationery and postage,	65 56	
Printing, including postal cards printed,	71 60	
Gas,	17 30	
Linoleum carpet for laboratory,	29 75	
Two desks and seven chairs,	91 50	
Rubber stamps,	6 35	
Publications,	9 50	
Gas fixtures, incandescent lamps and mantles,	32 56	
Miscellaneous,	10 13	
		$996 00
Meter inspection expenses: —		
Salary, first deputy,	$1,040 04	
Salary, second deputy,	780 00	
Travelling, deputies,	137 20	
Paid for badging meters,	307 23	
Brass,	28 06	
Wax,	50 00	
Four sets dates and holders for sealing,	126 93	
Two presses,	41 50	
Steel die for making badges,	40 00	
Numbering machine for badges,	30 00	
Repairs,	5 40	
Miscellaneous,	2 38	
		2,588 74
Apparatus and chemicals: —		
Wet experiment meter,	$50 00	
Miscellaneous apparatus,	65 02	
Mercury,	16 00	
Miscellaneous chemicals,	17 23	
Candles,	30 00	
Miscellaneous supplies,	11 58	
Repairs,	28 96	
		218 79
		$3,803 53

Appropriations: —		
For compensation of deputies, . . .	$2,500 00	
For apparatus, office rent and expenses, . .	1,600 00	
		$4,100 00
Total appropriations for the office for year, . . .		$10,500 00
Total expenditures, ...		9,905 53
Income from fees for meters tested during year, . . .		9,333 15

In the Revised Laws of the Commonwealth of Massachusetts, section 5, chapter 58, reads in part as follows: "From such fees the inspector shall be allowed annually not more than twenty-five hundred dollars for the compensation of such deputies; and any excess shall be paid into the treasury of the Commonwealth by said inspector quarterly on the first Monday of January, April, July and October of each year."

Since July 17, 1900, all the fees collected have been paid into the treasury of the Commonwealth, and all the bills have been paid by the Treasurer of the Commonwealth through the Auditor's office. The above-quoted portion of section 5 is liable to be misconstrued, and, at the Auditor's suggestion, the inspector would recommend the following change: —

In line 16, section 5, chapter 58 of the Revised Laws, after the word "deputies," change the semicolon to a period; in same line, substitute for the words "and any excess" the words "All fees collected," so as to read: "From such fees the inspector shall be allowed annually not more than twenty-five hundred dollars for the compensation of such deputies. All fees collected shall be paid into the treasury of the Commonwealth by said inspector quarterly on the first Monday of January, April, July and October of each year."

Respectfully submitted,

CHARLES D. JENKINS.